G. R. S. VI—S-v/14]

DRAFT.

(42

SUBJECT..... Patent 3

Section. Pal-
File No. 28-23
Serial No. 9

Diary No. of letter replied to.....

No. I. C. 6883/Cts

GENERAL AND REVENUE SECRETARIAT
( )
the *191*

To

The Deputy of
Customs in
Mysore

Date of issue 3/5/24

Signed by H. S. Hargreaves

Has the honor to forward herewith a deed of assignment ~~Power of Attorney~~ executed by Paul Zelander, Doctorate, Switzerland constituting Messrs. Remfry & Sons as Agents in respect of his ~~their~~ invention No. 10/2 for "improvements in a method & device for the production of hollow articles such as tubes, poles & the like from reinforced concrete" and to request that the same may be impressed with the Mysore General Stamp of the value of Rupee One & annas eight, also herewith forwarded, and the deed ~~Power~~ returned to this office.

5/4/24

By Order,

For Chief Secretary to Government.
Rr

(43)

Pat 28-23-0

G. R. S.VI—s.-v/21]

Government of Mysore.

GENERAL DEPARTMENT.

~~1.C.6884~~ 1.C.6884

Register No. 10 of 1923-24.

Bangalore, the 2 April 1924

WHEREAS an application, dated the 18th March 1924 and received on the 24th day of March 1924, has been submitted under Section 5 of the Mysore Inventions and Designs Regulation, 1894, by Internationale Siegwartbeton Gesellschaft, 10, Bahnhofstrasse, Lucerne, Switzerland

(hereinafter referred to as "the applicant") for leave to file a specification of an invention for "improvements in a method and a device for the production of hollow articles such as tubes & the like from reinforced concrete"

And whereas the applicant has duly complied with all the requirements of Section 5 of the said Regulation;

The Government of Mysore are pleased, under Section 6 of the said Regulation, to authorize the applicant to file a specification of the said invention in accordance with the provisions of the said Regulation.

ORDERED, that the applicant be, and he is hereby, informed accordingly.

By Order of the Government of Mysore,

Secretary to the Govt. of Mysore,
Rev ~~General~~ Department.

Certified that the fees prescribed in the fourth schedule to the Mysore Inventions and Designs Regulation, 1894, in respect of the application for leave to file the said specification and of the filing thereof have been paid by the applicant, and that the specification hereinbefore described has been duly filed in accordance with the provisions of Section 8 of the said Regulation on this the 22nd day of April 1924

for Secretary to the Govt. of Mysore,
Rev ~~General~~ Department.

(Section 8 of the Inventions and Designs Regulation, 1894.)

8. (1) If within six months from the date of an order under Section 6, Sub-Section (1), or within such further time, not exceeding three months, as the Government of Mysore, in its discretion, may, on cause shown to its satisfaction and on payment of the fee prescribed in that behalf in the fourth schedule, see fit to allow, the applicant causes a specification of his invention to be filed in manner by this Part required, and the fee prescribed in the fourth schedule in respect of the filing of the specification to be paid, the applicant shall, subject to the other provisions of this Part, be entitled to the exclusive privilege of making, selling and using the invention in the Territories of Mysore, and of authorizing others so to do, for a term of fourteen years from the date of the filing of the specification.

(2) But an exclusive privilege in respect of an invention of a new manufacture shall, notwithstanding anything in Sub-Section (1), cease, if the inventor fails to pay, within the time limited in that behalf by the fourth schedule, any fee prescribed in that schedule in respect of the continuance of the privilege.

(3) If, nevertheless, in any case, by accident, mistake, or inadvertence, an inventor fails to pay any such fee within the time so limited, he may apply to the Government of Mysore for an enlargement of the time for making the payment.

(4) Thereupon the Government of Mysore may enlarge the time accordingly, on payment of the fee prescribed in that behalf in the fourth schedule, and subject to the following conditions, namely :—

(*a*) the time for making a payment shall not in any case be enlarged for more than three months ; and

(*b*) if any suit is instituted in respect of an infringement of the exclusive privilege committed after a failure to make a payment within the time limited for the making thereof and before the enlargement of that time, the Court disposing of the suit may, if it thinks fit, refuse to award or give any damages in respect of the infringement.

W D 02300—GPB—500—21-11-16

G. R. S. VI—s-v/13]

(45) 3

DRAFT.

SUBJECT.....

.....

.....

Section. Pol-
File No. 28-23
Serial No. 11

No. I.C. 6 55

Enclosure.

Diary No. of letter replied to.....

To

Messrs: Remfry & Sons
Patents & Trade-Mark
Attorneys
Calcutta

GENERAL AND REVENUE SECRETARIAT,
( )
the.....191

GENTLEMEN,

The correspondence ending a

With reference to your letter ~~No.....~~

dated the 5th April 1924

Date of issue 8/5/24.

I am directed to forward herewith G. O.

Signed by [illegible]

No. I.C. 6884 dated the 2/7 April 24
~~G.M.~~ Ext 28-4-24

191 , authorizing Internationale Leigwaren

Gesellschaft of Lucerne

Switzerland

No 10/23-24

to file a specification of an invention, for "Improvements in a method & device for production of hollow articles such as tyres & the like from reinforced concrete"

and to request that the fact may be communicated to the party concerned.

~~I have, etc.~~ Yours faithfully

28/4

~~For~~ *Secretary to Government.*

Rev. Deptt.

48

GOVERNMENT OF MYSORE

GEN. & REV. SECRETARIAT
9-MAY 1924
INDUSTRIES & COMMERCE
BRANCH.

Ge 34740 4934

WD 0245—GPB—6,00,000—14-7-16—S.

191

From—

The Superintendent of Stamps.
in Mysore.

Pala 28-23-12

To The Secretary to the Govern
of H.H. the Maharaja of Mysore,
Revenue Department
Bangalore

Dated 8/
Despatched
Received 9-MAY 1924
General No. 414
No.
Enclosure No. One Assignment Deed

GEN. & REV. SECTION

Sir, I have the hono
to return herewith
duly stamped, the
Assignment deed
forwarded with your
No. L.C. 6883 of 3-5-24.
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produc-
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this
1924.

other letter necessary
Finished & returned

25)

COUPON. *The remitter may write here any communication to the payee.*

Rs. 30 As. 0

49

re INT. SIEGWARTBALKEN
GESEL. (MYSORE)
No. 10/23-24.
(As per our letter of date 9/5/24).

Remitter.

13/5/24

50) Pat. 28-23-13

5010

REGISTERED.

To

THE ~~CONTROLLER OF PATENTS~~, SECY. TO THE GOVT OF MYSORE,
~~PATENT OFFICE~~, GENL. & REV. DEPTS.,
~~CALCUTTA.~~ BANGALORE,
MYSORE.

FROM

REMFRY & SON,
PATENT & TRADE-MARK ATTORNEYS,
CALCUTTA.

35212

Dated CALCUTTA, the 9th May 1924.

SIR,

13 MAY 1924

GEN. & REV. SECRETARIAT
14 MAY 1924
INDUSTRIES & COMMERCE
BRANCH.

DEPT. P.	FILE LR. M.
FILE INDICATION.	
Mysore Pats.(Genl)	

re INT. SIEGWARTBALKEN-GESEL: (MYSORE)

No. 10/23-24 dated --

Pursuant to the Order granting Leave in this matter dated 3/5/24, Register No. 10 of 1923-24, we have the honour to forward herewith 4 copies of the Specification duly signed by us as Constituted Attorneys of the Applicants INTERNATIONALE SIEGWARTBALKEN-GESELLSCHAFT, 10 Bahnhofstrasse, Lucerne, Switzerland, in respect of its Invention for "IMPROVEMENTS "IN A METHOD AND A DEVICE FOR THE PRODUCTION OF HOLLOW "ARTICLES SUCH AS TUBES AND THE LIKE FROM REINFORCED CONCRETE'

The abovementioned Order is enclosed and we solicit the favour of your filling in the Certificate at foot thereof and having same signed.

A Post Office Order for Rs.30/-/- is sent today.

We have the honour to be to name our Office in Calcutta as address for service under the Act.

We have the honour to be,
Sir,
Your very obedient servants,

Remfry & Son

Enclos:-
4 Specns.
Order.

By P.O.O:-
Rs.30/-/-.

IMB.

P/O (Genl.) 1,000—29-3-24, [15-6-23, ... 17-3-21.]

Pat. 28-23

Duplicate.

(To be returned to the General and Revenue Secretariat for being placed in the file.)

1. No. 665
2. Date of Remittance 23-5-24
3. From whom received Messrs Rensfrey & Son, Calcutta.
4. Date of receipt of amount in the General and Revenue Secretariat 13-5-24
5. On what account filing fee in respect of Invention No 10-23
6. Amount (in figures and words) Rs 30/- ~~Thirty~~ only
7. The head to which it should be credited.

(To be filled in by the Treasury.)

S Narayana Rao

for Secretary to Government,

Rev ~~General~~ Department.

The above amount has been duly received and credited in the Treasury on this date.

Date

Hd. Acctt. *Treasurer.* *Try. Officer.*

N. B.—Both the counterfoil and the duplicate to be returned to the General and Revenue Secretariat duly signed by the Treasury Department.

Pat 28-23-15
cmd 6132

S P E C I F I C A T I O N :

TO ALL WHOM IT MAY CONCERN :

Be it known, that we, Internationale Siegwartbalken - Gesellschaft, of 10, Bahnhofstrasse, Lucerne, Switzerland, are in possession of an Invention for Improvements in a Method and a Device for the Production of Hollow Articles such as Tubes, Poles and the like from Re-Inforced Concrete, and we, the said Internationale Siegwartbalken-Gesellschaft, do hereby declare the nature of the said Invention and in what manner the same is to be performed, to be particularly described and ascertained in and by the following statement thereof, that is to say :

This invention relates to improvements in the well known method of producing objects such as pipes, masts, pipe-linings and the like from material such as concrete, preferably in a plastic state by the action of centrifugal force within a rotatable mould appropriately driven at a requisite speed and charged with the material by means of a longitudinally movable feeder or through which is inserted in the mould and is adapted to discharge the material therein while the mould is in rotation.

It has for its object to enable such pipes, masts or pipe linings to be produced by this method preferably in several successive layers in a most economical and reliable manner by improving the means for discharging the material from the feed member into the mould, the means for supplying the material to the feed member, for moving the mould into and out of operative position and for enabling it efficiently to respond to its driving mechanism so that layer after layer of a calculated thickness may be formed at a predetermined speed of the mould and by graduation of the effect of the centrifugal force inherent to the speed employed, the consistency and composition of each individual layer may be adequately controlled according to requirements.

To this end according to this invention the longitudinally movable feeder or trough adapted as usual to be inserted in the mould while the latter performs its rotary movement and constituted by a tubular or gun-shaped feed barrel having preferably both its top and its bottom longitudinally open is provided with a sliding shutter normally covering the whole of the longitudinal feed slot in the bottom of the barrel and adapted, when required, by a sliding movement across or transversely to the said feed slot to uncover longitudinal areas

or the whole thereof so that by a to and fro motion of this obturator different areas of the longitudinal discharge opening may be uncovered and the whole or only strips of the material caused to pass therethrough and severed from the bulk and deposited longitudinally in the mould. To this feed member the plastic material is supplied through the longitudinal opening in the top from a portable carrier or waggon provided with a charging portion or device readily adjustable to the feed member. In conjunction with this improved supply and feeding arrangement in order to enable the mould to perform its function in the most efficient manner it is driven at one end from the stationary support or head-stock by mechanism enabling its rotary speed to be reliably governed and has its other end appropriately journalled to counteract torsional effects while for its transport to and from its chucks a truck running on rails is used and provided with an adjustable raising and lowering gear of a novel construction.

The above characteristic features of the invention and constructional details associated therewith will be more clearly understood from the following description of the annexed drawings which represent by way of example two forms of construction of apparatus illustrative of the manner in which the invention may be performed.

Fig. 1 is a side view of the left hand part of one form of the apparatus.

Fig. 2 is the side view of the right hand part thereof.

Fig. 2a is a part of Fig. 2 on a larger scale.

Fig. 3 is a section on the line A-B of Fig. 1 on a larger scale.

Fig. 4is a section on the line C-D of Fig. 1 on a larger scale.

Fig. 5 is a section on the line E-F of Fig. 1 on a larger scale.

Fig. 6 is a longitudinal section on a larger scale of a part of Fig. 2.

Fig. 7 is a section on the line G-H of Fig. 2 on a larger scale.

Fig. 8 is a section on the line I-K of Fig. 1 on a larger scale.

Fig. 9 is a section on the line L-M of Fig. 8.

Fig. 10 is a section on the line N-O of Fig. 8 on a larger scale.

Fig. 11 is a section on the line P-Q of Fig. 2 on a larger scale.

Fig. 12 shows a part of Fig. 1 in side view.

Fig. 13 is a partial side view and axial section of the form or mould employed with a pipe as produced therein.

Fig. 14 is a section on the line R-S of Fig. 13.

Fig. 15 is an alternative to Fig. 7.

Fig. 16 is a vertical section and plan view of the device for charging the feed barrel.

Fig. 17 is a part of Fig. 16 seen from above.

Fig. 18 shows in cross-section (enlarged) a portion of a concrete pipe and

Fig. 19 a portion of a compound pipe produced by means of the method herein described.

Fig. 20 is a side view of a modified construction of the apparatus.

Fig. 21 is a part of Fig. 20 on an enlarged scale.

Fig. 22 is a vertical section thereof.

Fig. 23 shows another part of Fig. 20 on an enlarged scale.

Fig. 24 is a vertical section thereof.

Fig. 25 is a section on the line I-J of Fig. 24.

Fig. 26 shows a portion of an interwoven reinforcement seen from above, and

Fig. 27 is a side view of Fig. 26.

The apparatus shown in Figs. 1 and 2 is provided with a fixed head-stock 1 supporting a shaft 5 journalled in bearings 2, 3 and 4. Mounted on this shaft 5 is a friction disc 7 (Fig. 3) forming part of a clutch and fixed by means of key 6. The shaft 5 carries, moreover, a loose rotary bush 8 provided with a gear-wheel 9 and a driving-pulley 10 serving as the other part of the clutch. Supported on this driving-pulley 10 and slightly adjustable on its axis is a connecting-ring 11 governed by claws 12 pivoted on pins 13 of the driving-pulley 10 and provided with levers 14 with curved roller-guides 15 bearing on the inside of a socket-shaped slide 16 which is axially supported on the bush 8 and is adjustable thereon by means of studs 17 forming part of a fork 19 carried by a pin 18. The pin 18 is journalled in a bearing sleeve 20 which is in rigid connection with the bearing 3 (Figs. 1 and 5). Arranged on the part of the shaft 5 which is situated between the bearings 3 and 4 is a gear-wheel 22 (Figs. 3 and 4) adjustable on a key 21. This gear wheel rotates in the fork 23 of a lever 24 which is also adapted to oscillate about the shaft 5. Adjacent to the gear wheel 22 this lever carries an idler or pinion 25 in constant mesh with the wheel 22.

Journalled parallel to the shaft 5 in the upper parts 3a and 4a of the bearings 3 and 4 is the main shaft 26. Mounted at one end of this shaft by means of a key is one portion 27 of a friction-coupling, and adjacent thereto is the other portion 28 of this friction coupling which is rotatable,

but not axially movable on the shaft 26 and is connected with a gear-wheel 29. The gear-wheel 29 (Figs. 1 and 5) engages a gear-wheel 30 which in its turn meshes with the gear-wheel 9. A fork 31 which is in rigid connection with the fork 19 is provided with studs 32 engaging in the cylindrical groove in the clutch member 27. Connected to the pins 18 and forks 19 and 31 is a tie-rod 33 jointed to which is an actuating lever 34. Secured to the shaft 26 between the bearing-heads 3a and 4a is an interchangeable change speed gear 35 with members (Fig. 4) each of which is adapted to operate in engagement with the toothed wheel 23 on the lever 24, the actual position of which for that purpose is assured by the engagement of a spring bolt 36a in one of the holes 36 corresponding to the requisite gear member. The extreme inner end of the shaft 26 carries a chuck-plate or disc 37, provided with interchangeable funnel-shaped rings 38 (Figs. 1 and 13) for the reception of the end of the pipe mould at this end of the machine.

If the actuating lever 34 is in the central position shewn in Fig. 1, the grip of the claws 12 on the ring 11 is somewhat relaxed, so that the driving-pulley 10 does not engage the friction-disc 7.

In this case the gear-wheel 9 with the bush 8 revolves so that the gear-wheel 29 is also revolved.

The upper friction-coupling 27 and 28, is,however, open so that the rotation of the parts 28 and 29 has no effect on the shaft 26,which is consequently at rest.

If, however, the lever 34 is swung to the left, the slide 16 is carried in the same direction and the levers 14, owing to the formation of the curved guide 15, are drawn towards the outside so that the coupling parts 7 and 10 are thrown still further apart. Through this displacement of the lever 34

the friction coupling 27 and 28 is thrown in at the top causing the driving pulley 10, through the toothed wheels 9,30,29 to drive the frictional part 27 and with it the shaft 26, with the result that the disc 37 is made to revolve slowly.

If, on the contrary, the lever 34 is swung to the right, the slide 16 is drawn to the right and the levers 14 having their rollers guided on the curved-guides 15 are tipped towards the axis 5. By this movement the claws 12 press tightly against the connecting-ring 11 causing friction between the parts 7 and 10, and the shaft 5 to be driven directly by the driving-pulley 10. It is true that the toothed-wheel gearing 9,30,29 is also operative, but the coupling 27 and 28 being open, rotary movement cannot be communicated to the shaft 26. The rotary movement is,however, communicated to the toothed-wheel 22, over one of the interchangeable wheels 35 thrown into gear action and to the shaft 26. It is now,therefore,possible, to drive this shaft faster than before and in fact at four different speeds, and with the shaft the disc 37, for a purpose which will hereinafter be more fully explained.

Facing the fixed head-stock 1 is a travelling tail-stock 39, which is provided with a socket-ring 40 carrying interchangeable rings 41 into which the corresponding end of the pipe mould is fixed. This tail-stock 39 is movable and to that end placed on rails 42. In one practical embodiment of the installation, the distance x between the extremities of these rails and the disc 37 is approximately three feet, and the length y of the rails is about 16 feet so that the tail-stock 39 can be advanced towards the head-stock as represented by dotted lines in Fig. 1. By this method pipes of from approximately three to sixteen feet in length can be spun on one and the same machine. Between the two rings 38 and 41 the pipe

mould 43 is fixed as will hereinafter be more fully explained. For changing the position of the tail-stock 39 on the rails 42 (Figs. 8 and 9) a screw spindle 45 not capable of rotating is secured in fixed bearings 44, carrying a travelling nut 46 which is provided with a worm wheel 47 adapted to engage an endless screw 48 arranged to be rotated by means of a hand-wheel 49 (Figs. 1 and 8). The nut 46 lies between two bearings 50 secured to the travelling tail-stock 39. By turning the hand-wheel 49 the tail-stock 39 is therefore set in motion. To securely lock the tail-stock on the rails 42 in the desired position two revolving shafts 51 worked by hand wheels are made use of, each of which is provided at opposite ends with a right handed and a left handed screw spindle 52, said screw spindles carrying nuts 53 connected to levers 54 (Figs. 8 and 9) pivoted on journals 55 on the head and tail-stocks, and terminating in claws 56 gripping under the rails 42. By rotating the shafts 51 the claws 56 can be driven under the rails 42 whereby the tail-stock 39 is fixed in position.

The ring 40 is secured to a revolving socket 57 (Fig. 9) which is journalled in the tail-stock, the socket being freely supported between rollers 58 (Figs. 8 and 10) of which the lower ones are arranged to dip in an oil-bath. Each roller 58 (Fig. 10) is journalled on ball-bearings 59 mounted on shafts 60 in the casing of the tail-stock 39 and the socket 57 is provided with counter-pressure ball-bearings 61. The socket 57 is therefore, not directly driven but derives its rotary movement from the disc 37 mounted on the driving shaft 26 and through the mould 43 causes it to be communicated to the ring 40.

For the purpose of this invention a pipe-mould 43 constructed mainly of wood is made use of. In the example shown this mould is composed of three sections 43a, 43b and 43c

(Figs. 13 and 14) and in order to reduce weight it is built up of spars alternating with cut-out slot-shaped openings 62. Quadrant-shaped channel irons 63 are secured to the outside of the sections by means of screws, so that when the three sections are assembled, the channel irons form complete circular straps adapted to ensure rigidity, and shaped to receive chains 64 which are drawn taut by means of screw-bolt fastenings 65 or the like to hold the three longitudinal sections of themould firmly together.

On the inside of the sections the mould shown is provided with a lining 66 of sheet-metal such as sheet iron or zinc, which may, however, be omitted. This mould or form assumed to be used in Fig. 1 is, as mentioned, properly fitted between the conically shaped rings 38 and 41.

In order to fit the mould in and between these rings 38, 41 or to remove it therefrom and from the machine it is supported on a carriage 76 (Figs. 1 and 12) placed rectangularly to the rails 42 on removable and adjustable rails 75 between the head-stock 1 and tail-stock 39. This carriage 76 is provided with inclined rollers 79 freely turning around their pivots and resting on two telescopic columns 77 which can be raised or lowered by means of ratchet hoists 78, thus enabling the mould 43 to be seated on the rollers 79 and to be displaced axially on the rollers and raised and lowered at will.

Arranged in the rear of the tail-stock 39 (Fig. 2) is a mobile material charging device provided with a gun-shaped feed member or barrel for supplying material to the mould as hereinafter explained. 67 is a carriage support for the feed member. It is mounted on wheels 68 adapted to run on rails 69. As usual the feed member can be introduced through the hollow

tail-stock 39 into the mould 43 so that in its foremost position the closed forward end 70 thereof lies in close proximity of the disc 37. The carriage 67 may for instance be driven by means of a chain-gear 71 operable by a handle 72. On the back of the carriage are two descending stays 73 to which rollers 74 are connected gripping under the rails 69, the object being to prevent the carriage overbalancing at the front. Journalled on horizontal trunnions 81 in the open bearings 80 mounted on the carriage 67 is the rear closed portion 82a of the gun-shaped feed member 82 (Fig. 2 and 11) and thrust-screws 83 fitted at both sides (Fig. 2a) on the rearmost bearing members are employed to ensure the adjustment of the trough in a horizontal position. The part of the feed member 82 (Figs. 2, 6 and 7) extending out in front of the carriage has its upper side and over its whole length provided with an opening or slot 84 through which the plastic material is charged into it, and on its under side is a similar opening or slot 85 through which the material is fed into the pipe mould 43. The lateral walls 86 of the feed member 82 in this example are formed of quadrant-shaped sides held together by strengthening ties 87, and running through the centre of these and terminating in a metal disc 88 closing the feed member at its extremity, is a mobile rod 89 operable by a hand-wheel 90 arranged outside of the feed barrel. Secured to this rod 89 in the interior of the feed barrel 82 immediately above the discharge opening or slit 85 on the under side thereof is a quadrant-shaped shutter 92 extending from one extremity of the opening 85 to the other and connected to the rod 89 by means of bolts 91. By turning the hand wheel 90 from left to right or right to left the quadrant-shaped shutter 92 may be swung first in one, and then, if desired, in the opposite

direction to any requisite extent across the longitudinal feed slot 85 thereby exposing longitudinal sections or the whole of the opening 85 as the case may be, and accordingly enabling part of or the whole of the plastic material contained in the feed barrel 82 to be discharged through the slot and by the reverse motion across the slot area uncovered, cutting the material passing therethrough from the bulk in the feed barrel, so that strips of material according to the width of the exposed slot area and of the full length of the feed barrel may be deposited longitudinally in the pipe-mould 43. This takes place after the feed barrel has been filled with the plastic material from one end to the other of its length and has been introduced into the mould 43.

Material such as concrete when used in a plastic condition is somewhat sluggish and its clean discharge from a tubular member through a long slot is greatly facilitated by the sweeping action of a sliding member such as 92 operating in contact with both the concrete material and with the walls of the feed barrel when the latter may then be wipped clean of the charge after each revolution of the shutter.

The barrel 82 can also be formed of the section shown in Fig. 15, in which the shutter 92a over the discharge opening 85a can be worked by a hand-wheel 90a from one side by means of a worm-screw gear 93.

In order to fill the feed member 82 with plastic concrete use may preferably be made of a device such as represented in Figs. 16 and 17. 94 is an elevated recipient into which the mixed concrete is charged by means of a conveyor device 95. From this recipient the concrete passes through a chute 96 into a further recipient 97 placed under the chute 96 and resting on a waggon 99 running on rails 98. The rails 98 are so laid as to form a part track 98a parallel to the feed

member 82. When the waggon 99 is in the position shown in Fig. 17, a hinged upright plank 100 on the recipient 97 is swung down from its position in Fig. 16 (right-hand) to the position in Fig. 16 (left-hand) to present an inclined plane so that the material moving out of the recipient 97 on the waggon 99 can be transferred over the plane 100 into the feed barrel 82. In order to enable this operation to be effected with ease, the plane 100 has its free end provided with an adjustable clamp 101 holding a guide-board 102 guiding the plastic concrete through the upper opening or slit 84 into the barrel 82. After one section of the feed barrel has been charged with the plastic material, the waggon 99 is moved farther along in the direction of the arrow shown in Fig. 17, so that by degrees the feed barrel 82 becomes completely filled from one end to the other.

In the second constructional example, shown in Figs. 20-25 the disposition of the apparatus is substantially the same, its construction, however, being modified. 103 is the fixed head-stock provided with a shaft 106 journalled in bearings 104 and 105. An adjustable friction wheel or disc 107 is keyed on the shaft 106, the friction wheel 107 moving backwards and forwards over the key. Its periphery rests against a friction disc 108 which is driven by a driving pulley 109.

A movable bush 111 is lodged in the bearing 110 of the friction disc 108 and a weight 112 tends constantly to press the bush 111 against the friction disc 108, and the latter against the friction-disc 107 thus securing a reliable co-operation of both friction discs. Engaging in a groove in the hub 113 of the friction-disc 107 is an adjustable fork 114 forming a nut for a screw spindle 116 which carries a hand wheel 115 whereby the speed of rotation between the driving-

pulley 109 and the socket 117 can be varied to a considerable extent. Fitted between the socket 117 and disc 118 is the rotatable pipe mould 11C. This pipe mould may again be made in sections and consist either of aluminium or of an exterior wooden casing lined with either zinc or sheet-iron. 120 is the travelling tail-stock provided with a bush 121 adjustable axially by means of toothed gearing 122. Arranged within this bush 121 is a bush 123 rotatable on ball-bearings 122a and adapted to receive the socket 118. The tail-stock 120 travels on rails 124 and may be locked thereto at the desired point by means of any appropriate device (not shown) but similar to the gripping device shown in Fig. 8. 125 is the travelling carriage provided with the feed member 126 designed to contain the plastic substance, and 127 is the hand-wheel governing the shutter in the interior of this feed barrel.

Fig. 26 and 27 shows interwoven wire or wire netting from which cylindrical reinforcements for use in the pipe to be made are preferably built up. This wire netting is composed of individual undulated longitudinal rods 128 which are held together by means of interwoven cross wires 129, 130.

One way, for example, of producing a reinforced pipe by means of the apparatus hereinbefore described is as follows

A cylinder-shaped reinforcement formed for instance, from the interwoven wires 128,130 is first laid in the mould 43 (Fig. 13) so as to leave a clearance between it and the sheet-iron or zinc lining 66. The longitudinal sections of the mould 43 are then fastened together by means of the chains, hooks and screw-bolts and the ends are preferably fitted with the usual dimensioning rings 131 and 132. In addition angle-rings 38,41 of a diameter corresponding to that of the pipe-

mould in which the pipe is spun are fitted to the disc 37 of the head-stock and to the socket 40 of the tail-stock. The lever 34 is in the position shewn in Fig. 1 so that the shaft 26 does not revolve. The pipe-mould thereupon, by means of the carriage 76, is raised between head-stock and tail-stock, and the latter 39 advanced so far towards thehead-stock that the pipe-mould becomes tightly wedged in between the two discs above referred to. The carriage 76 is then removed. The feed barrel 82 is then filled with plastic concrete by means of the device shewn in Figs. 16 and 17, and introduced through the tail-stock into the mould 43. Then the starting lever 34 is swung over to the left causing the shaft 26 and simultaneously the mould 43 to be revolved at a relatively slow speed appropriately chosen according to circumstances. Then by rotating the hand wheel 90 from left to right and right to left, the material inside the feed barrel is kept in motion and longitudinal strips or the whole of the plastic substance contained in the barrel 82 may be caused to fall into the rotating mould and carried around and through the meshes of the wire reinforcement 128 to 130 (Fig. 18) in contact with the interior wall of the mould. The result of this operation is the formation of an outer layer133 the component parts of which, with the wire reinforcement embedded remainmixed together, since due to the inconsiderable amount of centrifugal force no. noticeable segregation of the constituent parts has occurred owing to the slow rotary movement of the pipe-mould at this stage of the operation. This layer 133 will be found to be composed of numerous thin coats formed during the continuous rotary movement in the shape of spirals or rings wound closely one about the other, or, laid with interruptions or breaks in their continuity in the shape of concentric thin sheets. As soon as this

outer layer has attained the desired thickness, a fresh layer is added after the lever 34, however, has been swung over to the right causing a considerably increased movement of rotation to be imparted to the mould and an increased effect of centrifugal action to be applied to the plastic material. In this stage of the operation with plastic concrete, a layer composed of cement 134 and of lime-hydrate 135 clearly segregated, may be found to have been formed from the concrete if the mould is rotated at the requisite speed. The advantage of a deposit of lime-hydrate on the inner surface of the pipe is that the concrete forming the body of the pipe out of which the lime-hydrate has thus been extracted is rendered proof against the corrosive influence of acids, as experiments have proved, hence the interior of such pipes cannot be affected by the acids contained in the soil in which the pipes are laid; they can, therefore, be employed without fear of corrosion for land-drainage.

Such pipes having a higly smooth inner surface can furthermore be utilized as sewage pipes without fear of their structure being in any way affected by the acids contained in the impure waters passing through them.

The operation may be modified inasmuch as a proportion of the plastic concrete necessary for forming a pipe may be introduced into the mould, left to dry and a further proportion introduced, thus adding to the thickness of the pipe structure, and so forth.

In accordance with this method pipes withstanding high pressures up to 30 atmospheres and more can be produced. As shown in Fig. 19 a layer 136 is first formed to embed the reinforcement followed by a layer of asphalt 137, whereafter a second reinforcement is laid in to be in turn embedded in a layer of

concrete 138, whereupon a layer of cement 134 and of lime-hydrate 135 are added by appropriately controlling the rotary velocity of the mould and the thickness of the strips of the material introduced therein.

Having now particularly described and ascertained the nature of our said invention and in what manner the same is to be performed, we declare that what we claim is :

1. In apparatus for the manufacture of pipes, masts, pipe linings or like objects centrifugally from plastic material, such as concrete by means of a rotating mould, in which the material is deposited through a feed slot in a non-rotatable longitudinally movable tubular or like feed member or barrel, the provision of a sliding shutter or obturator to control the said feed slot by a sliding movement in contact with the walls of the feed barrel angularly to the said feed slot and mechanism directly driving the mould at a predetermined rotary velocity from one end and an antifriction support to counteract torque from the other end enabling the layers of plastic material deposited in the mould commensurate with the longitudinally uncovered areas of the feed slot to be spun into pipe layers of a consistency and composition accurately graduated by the force of centrifugal action inherent to the speed imparted to the mould.

2. In apparatus for the manufacture of pipes, masts, pipe linings or like objects centrifugally from plastic material such as concrete, as claimed in claim 1, the construction of the feed barrel with a feed opening extending substantially over the whole length of the feed barrel and the arrangement of the sliding obturator within the feed barrel so as to be adapted to perform to and fro movements transversely across

the feed slot to enable the material to be discharged and covered from the bulk along the longitudinally uncovered sections or strips of the feed slot.

3. In apparatus for the manufacture of pipes, masts, pipe linings or like objects centrifugally from plastic material such as concrete, as claimed in claim 1 or 2, the use of a feed barrel having both its top and bottom longitudinally open and the construction of the sliding shutter in the form of a part cylindrical member in contact with the wall of the barrel and rotatable thereon over the openings in the top and bottom thereof substantially as and for the purpose set forth.

4. In apparatus for ~~xxxxx~~ the manufacture of pipes, masts, pipe linings or like objects centrifugally fromplastic material such as concrete as claimed in claim 1, 2 or 3, the arrangement of the feed barrel in a detachable and horizontally adjustable manner on a trolley provided with a propelling gear for its transport on guide rails and prevented from tipping forward by the provision of wheels engaging under the rails, substantially as described.

5. In apparatus for the manufacture of pipes, masts, pipe linings or like objects centrifugally from plastic material such as concrete as claimed in claim 1, 2 or 3, the use for the conveyance of the plastic material from a supply source such as a concrete mixer to the feed barrel, of a waggon running on rails placed parallel to the feed barrel and provided with a charging board leading to the filling opening in the top of the feed barrel and a guide plate linked to said board for directing the mass into said filling opening substantially as described.

6. In apparatus for the manufacture of pipes, masts, pipe linings or like objects centrifugally from plastic material such as concrete as claimed in claim 1 the provision for rotatably supporting the ends of the mould between a stationary head stock and a movable tail-stock through which the feed barrel is inserted in the mould of clamping chucks each adapted to receive interchangeable conical clamping rings for gripping the ends of the mould the clamping chuck on the head stock being directly driven while the clamping chuck on the tail stock side is rotated from the mould and mounted on a sleeve journalled to rotate freely on rollers and provided with thrust bearings to counteract torsional forces, substantially as described.

7. In apparatus for the manufacture of pipes, masts, pipe linings or like objects centrifugally from plastic material such as concrete as claimed in claim 6, the construction of the tail stock with grips for temporarily locking the tail stock on its guides and the mechanism for moving the tail stock after the said locking device has been released, substantially as described.

8. In apparatus for the manufacture of pipes, masts, pipe linings or like objects centrifugally from plastic material such as concrete as claimed in claim 1 or 6 the use for transporting the mould to and from its operative position of a trolley adapted to run between the head stock and tail stock at right angles to the line of movement of the movable tail stock, said trolley being provided with inclined rollers supported on telescopic adjustable supports to enable the mould to be adjusted in its precise position during the operation of clamping between or removing from the chucks substantially as described.

9. Apparatus for the manufacture of pipes, masts, pipe linings or like objects centrifugally from plastic material such as concrete and arranged as a whole and having its constituent parts constructed and operating substantially as described and as illustrated in the annexed drawings.

Dated this 1st day of March 1924.

INTERNATIONALE SIEGWARTBALKEN-
GESELLSCHAFT

by its Constituted Attorneys

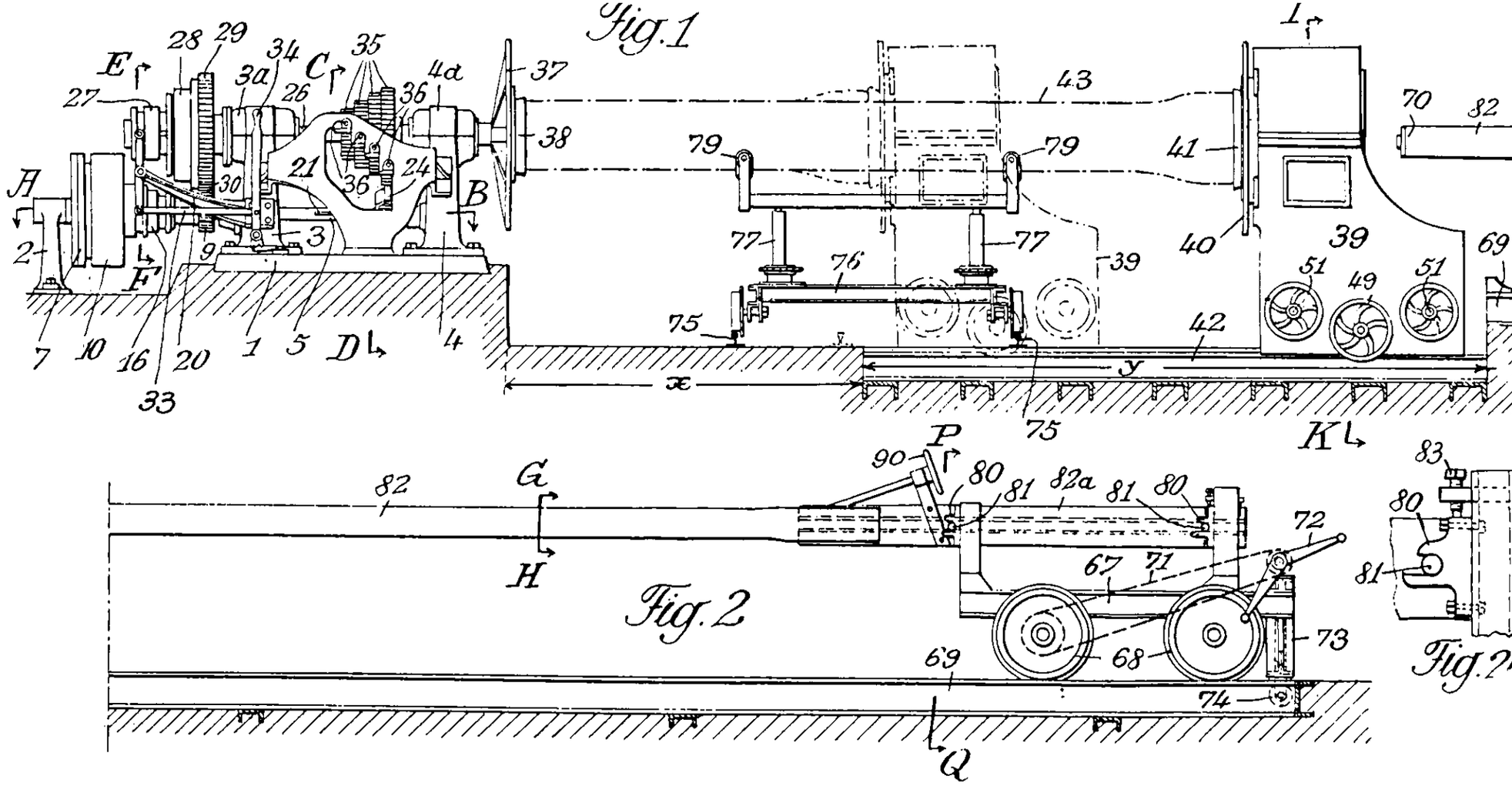
Fig. 1
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Fig. 2
Fig. 2'

Fig 3

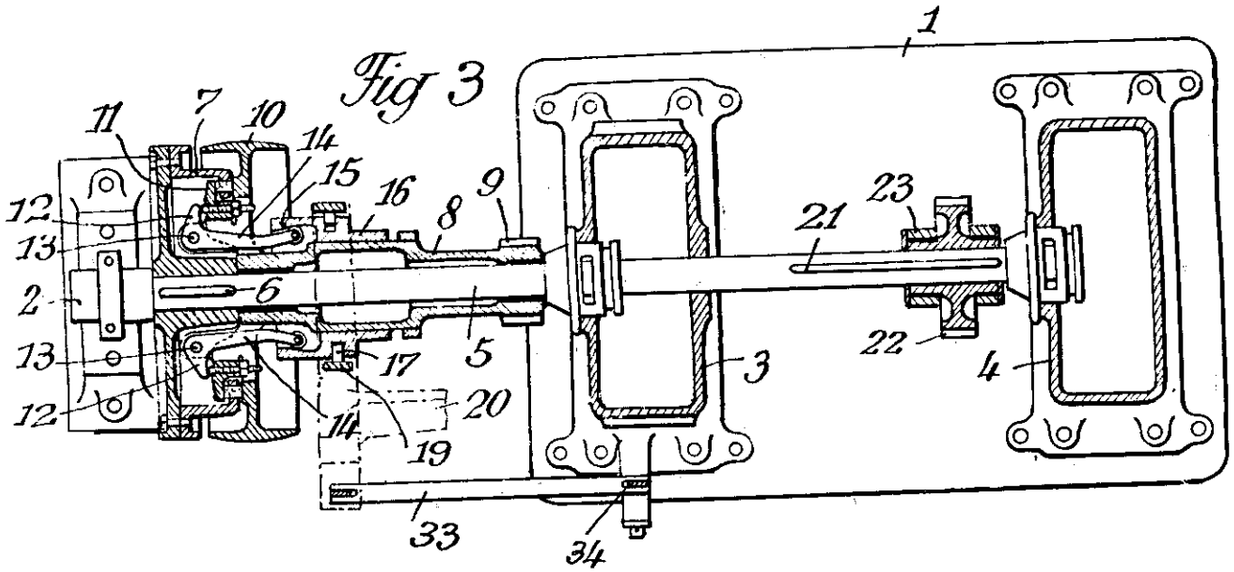


Fig. 7

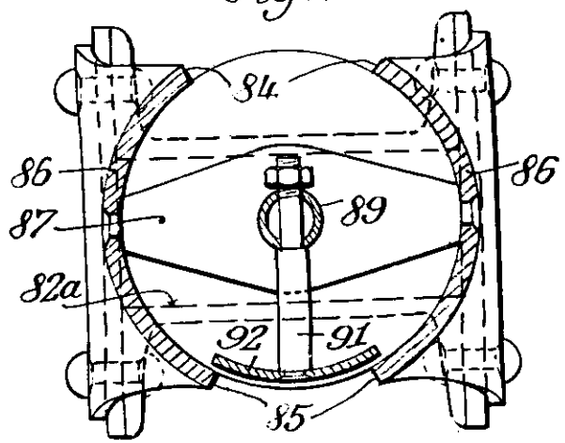


Fig. 6

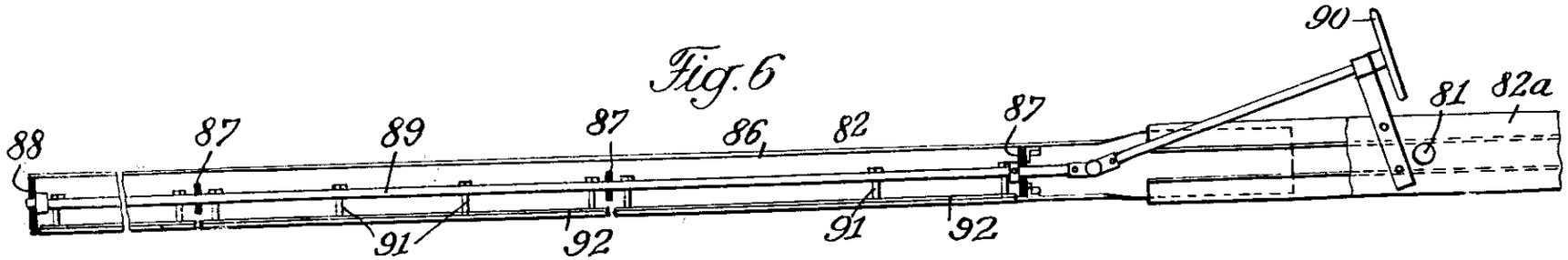
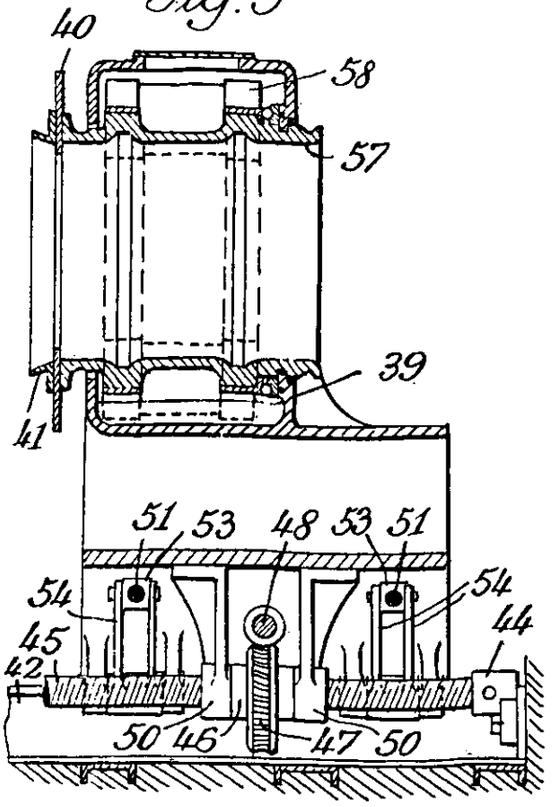


Fig. 9



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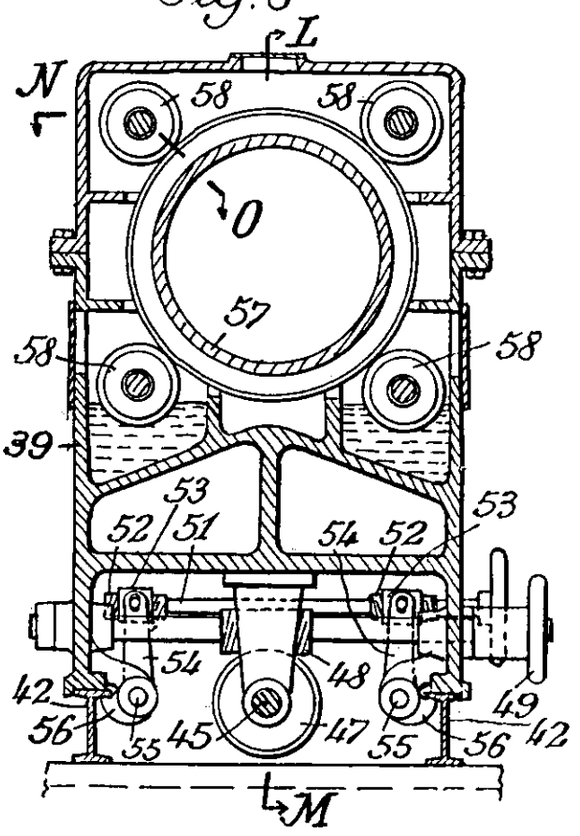
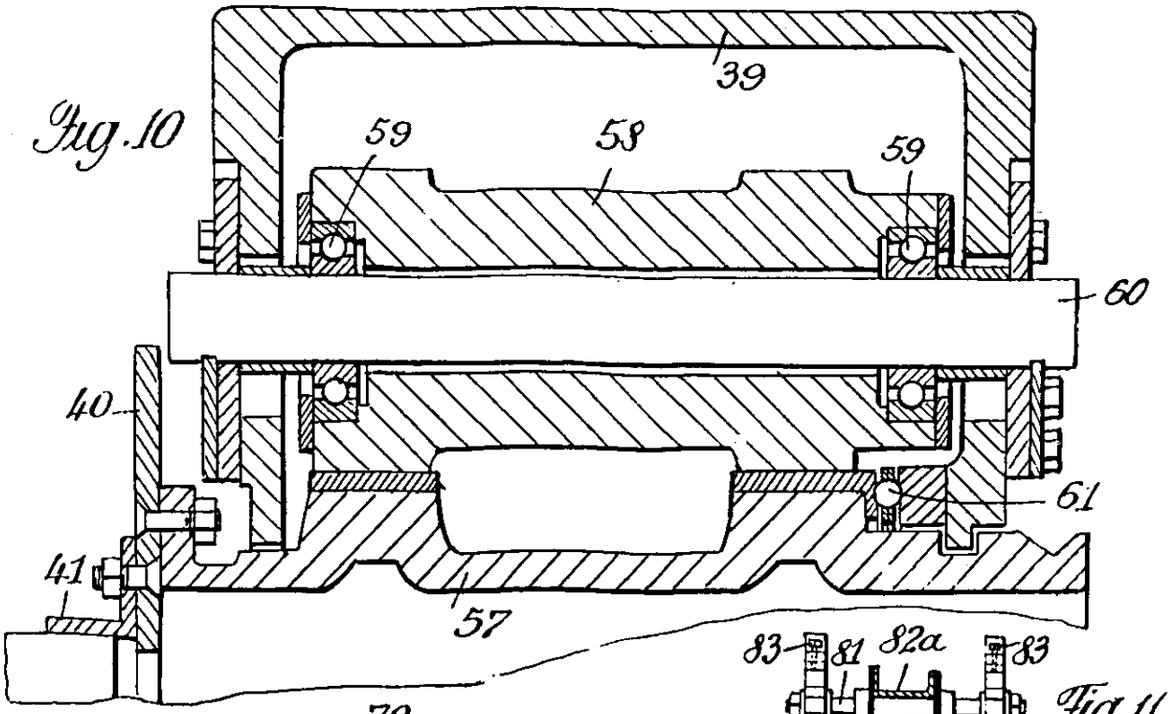


Fig. 10



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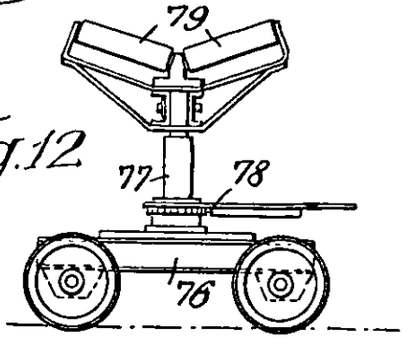

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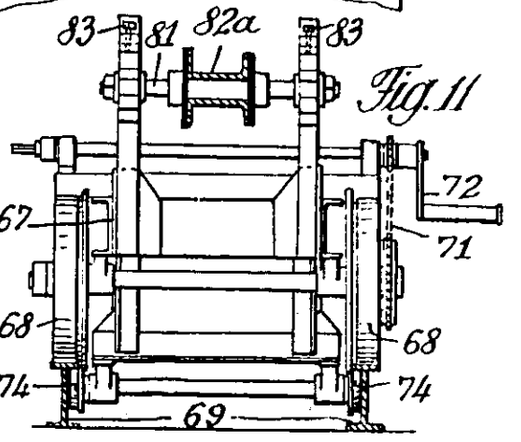

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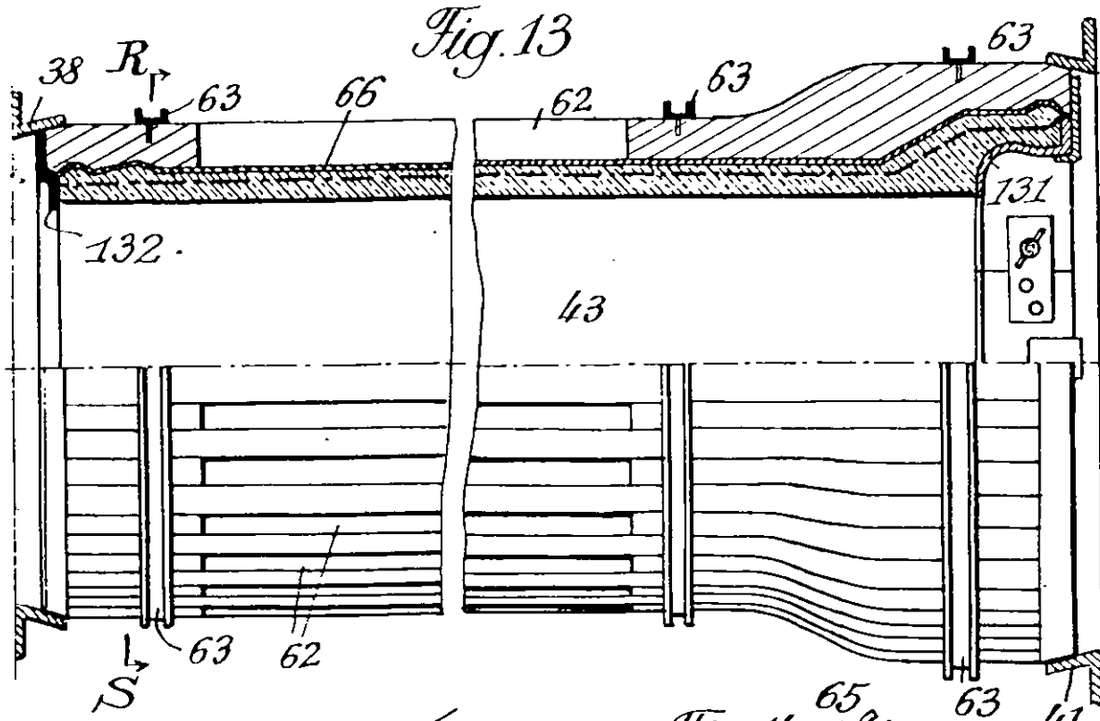

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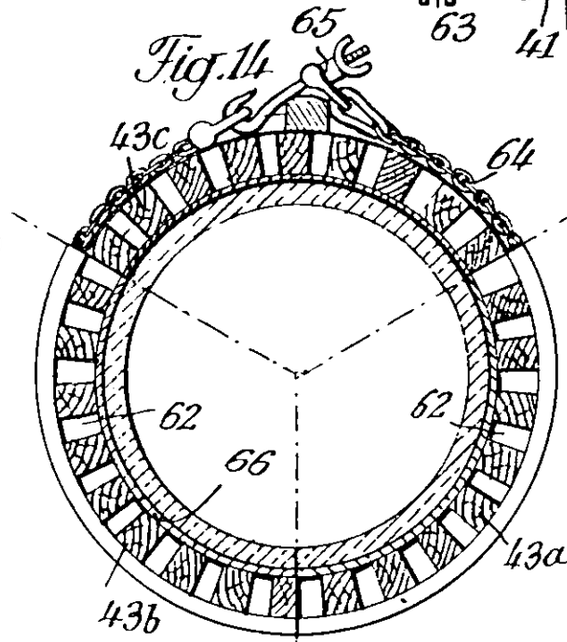

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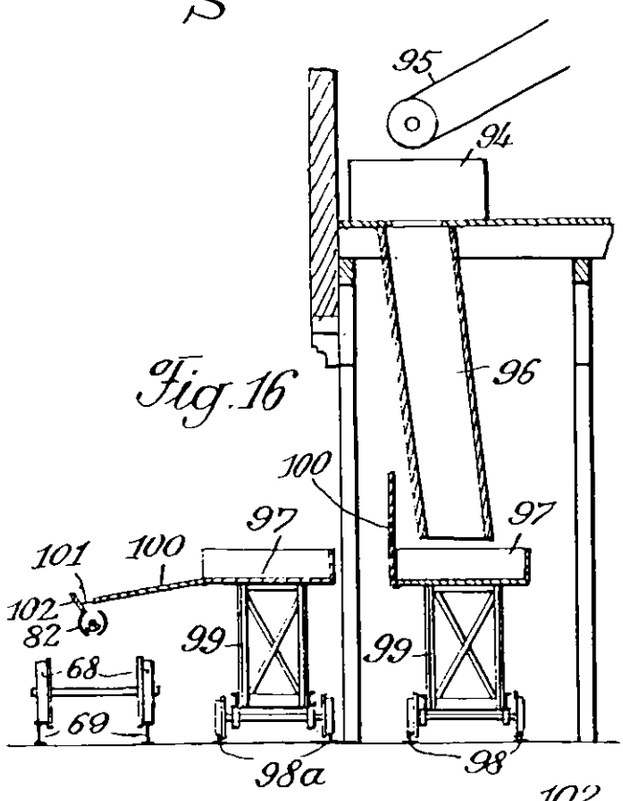

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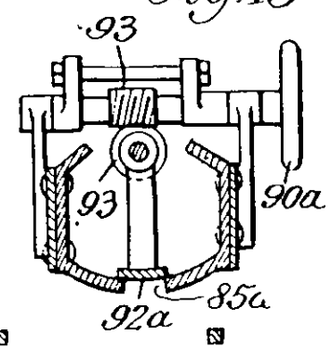


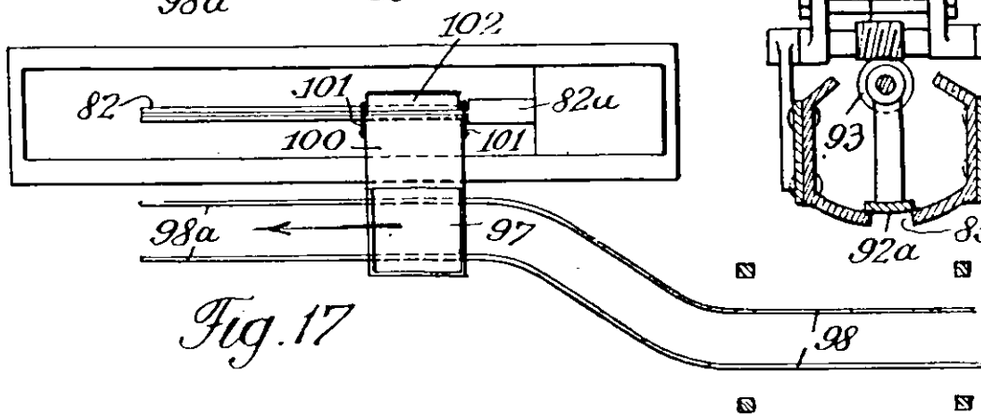
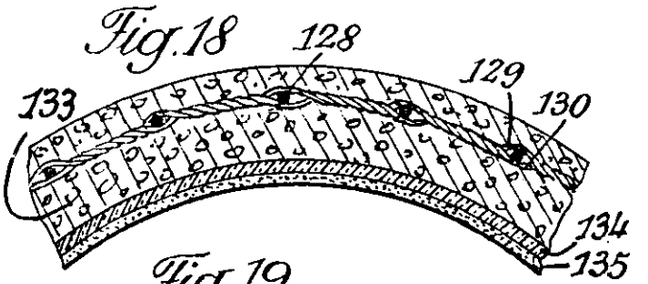


Fig. 17

Fig. 18



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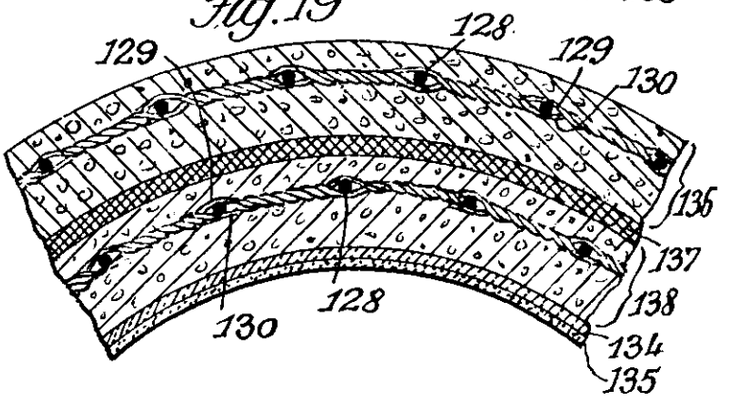


Fig. 4

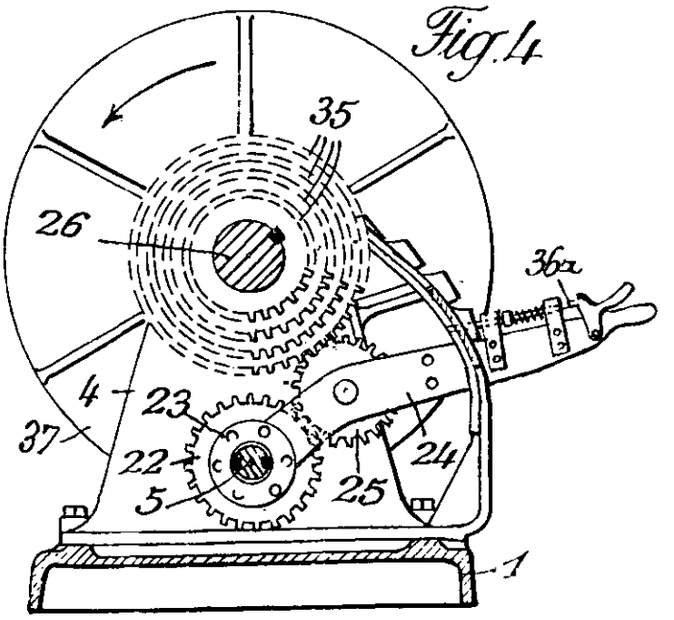


Fig. 5

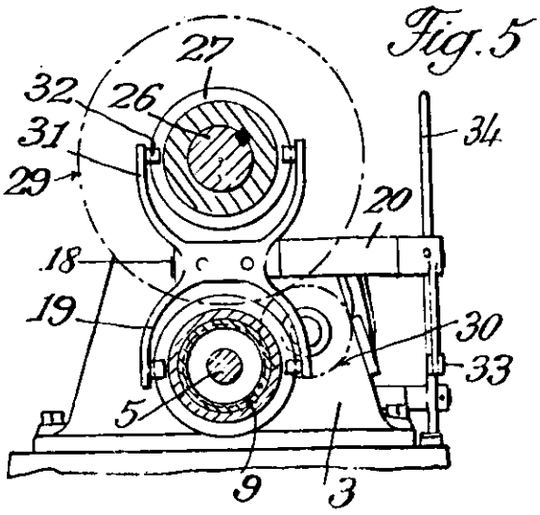


Fig. 20

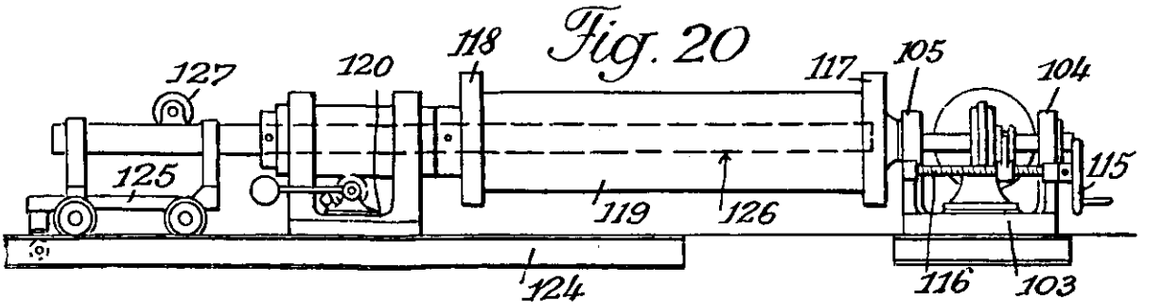


Fig. 22

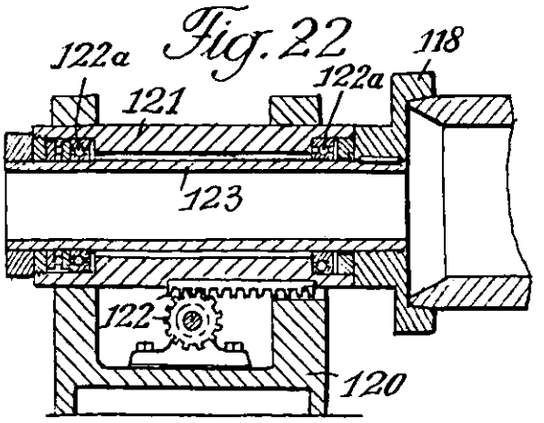
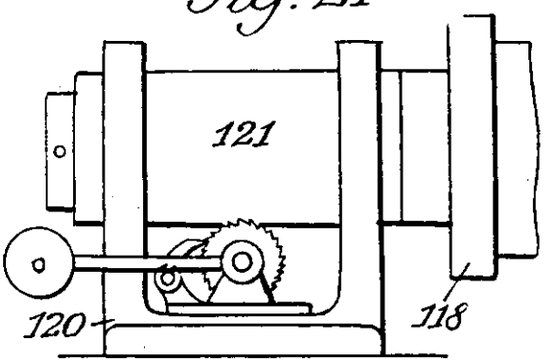


Fig. 21



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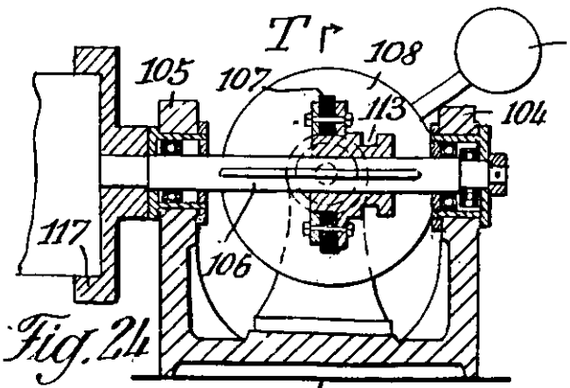

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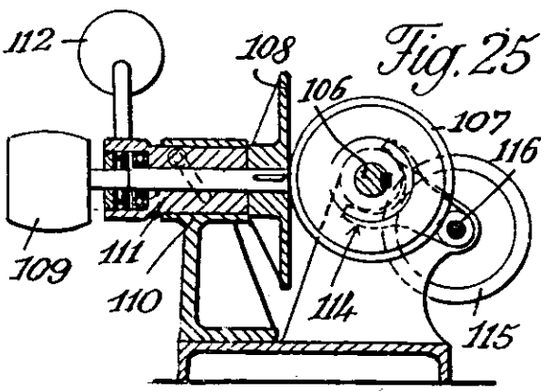


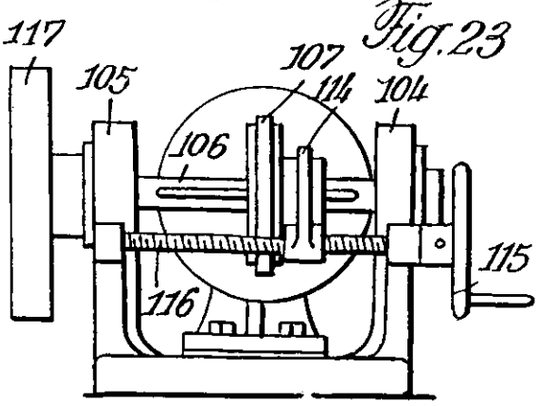
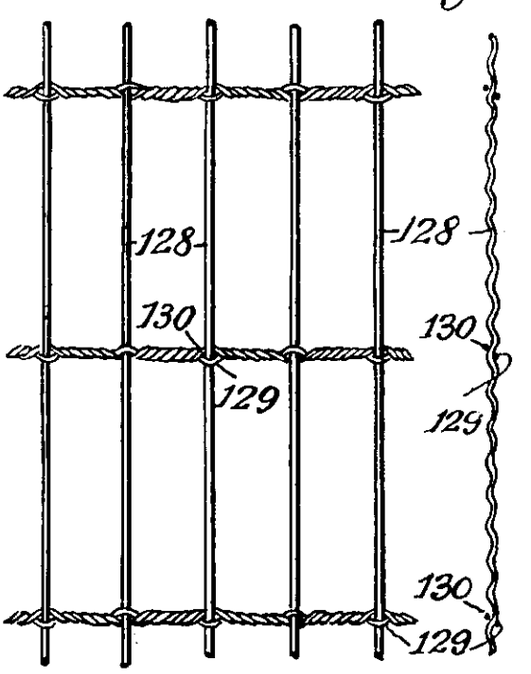


Fig. 23

Fig. 26

Fig. 27



From Rev

THE ~~CHIEF~~ SECRETARY TO THE
GOVERNMENT OF HIS HIGHNESS
THE MAHARAJA OF MYSORE

To The Registrar of Stamps in Mysore

Dated 16/5/24

No. I.C 7137 / Pol. 28-23-14

Has the honor to acknowledge the receipt of the ~~Power of Attorney~~ deed of assignment duly impressed with the Mysore Stamp and returned with your letter No. L.I.C.I dated 3/5/24

By Order,

14/5/24

For ~~Chief~~ Rev Secretary to Government.

Dated 16/5/24.

and

3015

GOVERNMENT OF HIS HIGHNESS THE MAHARAJA OF MYSORE.

GENERAL AND REVENUE SECRETARIAT

Bangalore, Dated 22/5/1922

No. C7287 / Pat. 28-23-15

NOTIFICATION.

(PATENT)

no 10-23

The following specification of an invention has been filed in accordance with Sections 8, 9 10 and 11 of Regulation XI of 1894 (The inventions and Designs Regulations) and is open to inspection at the Mysore Government Secretariat on application to the ~~Chief~~ Secretary to the Government of His Highness the Maharaja of Mysore, and on payment of a fee of one Rupee.

By Internationale Siegwartbalken Gesellschaft of Lucerne, Switzerland

For improvements in a method and a device for the production of hollow articles such as tubes and the like from re-inforced concrete

By Order,

SMR 16/1-

for Secretary to Government.

To

The Compiler, Mysore Gazette, for publication.

G. R. S. VII—s-v/18]

GOVERNMENT OF HIS HIGHNESS THE MAHARAJA OF MYSORE.

GENERAL AND REVENUE SECRETARIAT.

No. I.C 7288 Dated Bangalore, 22/5/1924 / Encl. 2 pdr 28-23-6.

FROM

Secretary to the Government of H. H. the Maharaja of Mysore,

To

Messrs: Remfrey & Son
Calcutta

Gentlemen

~~Sir,~~

With reference to your letter dated 9-5-24 I am directed to forward copy of a Notification No. dated issued by this Government in regard to the invention filed 20-10-23 by you under Regulation XI of 1894 (The Inventions and Designs Regulations.)

The order granting permission to file specification is herewith returned' with the certificate at foot, duly filled in and signed.

I have the honor to be,
~~Sir,~~
Your most obedient servant,

Yours faithfully

SM 22/5/24
for Secretary to Government.

Rec'd.

WD 02297—GPB—250—4-2-18

G. R. S. VI.—s-v/12]

3.

DRAFT.

SUBJECT.....

.....

.....

Section. Part
File No. 28-23
Serial No. 17

No. 1.C. 7277-91 / Encl. one cake

Diary No. of letter replied to.....

GENERAL AND REVENUE SECRETARIAT,
( )
the.....191

(1) *The Superintendent, Govt. Museum.*
(2) *The Chief Engineer of Mysore.*
(3) ..... Dir. of Industries & Commerce

Date of issue..22/5/24.

Signed by..Jr. T. Ramiah

Has the honor to forward herewith

for record in his office copy of a specification of an invention for..... 28.10-23 improvements in a method and a device for the production of hollow articles such as tubes & the like from re-inforced concrete.

By Order,

SM 16/5

for Secretary to Government,

Rev. dept.